

Having thus described the preferred embodiments, the invention is now claimed to be:

1. A diagnostic imaging system comprising:
a means (30) for supporting a subject;
a means (32) for translating the supporting means (30) through an examination region (20);
an x-ray source (16);
a means (78) for rotating the x-ray source (16) around the examination region (20);
a means (74) for controlling the x-ray source (16) to pulse the x-ray source (16) at a selected angular location around the subject to transmit radiation through the subject as the subject is translated through the examination region (20);
a means (22) for detecting transmitted radiation, which has passed through the subject; and
a means (54) for reconstructing a pilot scan of the subject from the radiation detected when the x-ray source (16) was pulsed at the selected angular location as the subject was translated through the examination region (20).
2. The diagnostic imaging system as set forth in claim 1, wherein the radiation controlling means (74) includes an x-ray source controller (76).
3. The diagnostic imaging system as set forth in claim 1, further including:
a couch motor control (80) in an operative connection with the translating means (32) to operate the subject supporting means (30) at a selected speed.
4. The diagnostic imaging system as set forth in claim 3, further including:
a system controller (42) which controls:
the x-ray source controller (74) to pulse the radiation by the x-ray source (16) at the selected angular orientation, and

the couch motor control (80) to translate the subject through the examination region (20) in coordination with pulsing of the x-ray tube (16).

5. The diagnostic imaging system as set forth in claim 4, wherein the system controller (42) and the x-ray source controller (76) cause the x-ray source (16) to pulse at least one of 6 and 12 o'clock in each revolution.

6. The diagnostic imaging system as set forth in claim 5, wherein the radiation is pulsed at both 6 and 12 o'clock.

7. The diagnostic imaging system as set forth in claim 4, wherein the x-ray radiation source controller (76) pulses the radiation source (16) at a plurality of the selected angular locations in each revolution.

8. The diagnostic imaging system as set forth in claim 7, wherein the angular locations are fixed every 9 degrees of rotation.

9. The diagnostic imaging system as set forth in claim 7 further including:
a means (90) for calculating subject contour.

10. The diagnostic imaging system as set forth in claim 9, wherein the transmitted radiation received by the detection means (22) is indicative of an attenuation of the radiation and further including:

a means (64) for determining a radiation dose, the radiation dose being determined based on an attenuation data and subject contour.

11. The diagnostic imaging system as set forth in claim 10, further including:
a means (62) for converting the dose calculations into parameters for a computed tomography scan.

12. The diagnostic imaging system as set forth in claim 1, further including:

stationery gantry (12) defining the subject receiving examination region (20);
rotating gantry (22) which rotates about the examination region (20); and
one of air bearings and magnetic bearings for supporting the rotating gantry (22)
in the stationery gantry (12).

13. A method for generating a pilot scan, the method comprising:
supporting and translating a subject support (30) through an examination region;
rotating a source (16) of an x-ray radiation around the examination region;
controlling the x-ray source to pulse the x-ray source at a selected angular
location around the subject support to transmit radiation through the subject as the
subject is translated through the examination region;
detecting transmitted radiation, which has passed through the subject; and
reconstructing a pilot scan of the subject from the radiation detected when the x-
ray source was pulsed at the selected angular location as the subject was translated
through the examination region.

14. The method as set forth in claim 13, further including:
controlling a position and movement of the subject support to operate the subject
support at a selected speed and orientation.

15. The method as set forth in claim 13, further including:
rotating an x-ray source at a selected speed;
pulsing an x-ray to pass on the radiation through the examination region as the
x-ray source rotates through the selected angular location; and,
moving a subject support in coordinating with the rotating and pulsing of the x-
ray source.

16. The method as set forth in claim 15, further including:
pulsing the x-ray source at least at one of 6 and 12 o'clock in each revolution.

17. The method as set forth in claim 16, further including:
pulsing the x-ray source at each of 6 and 12 o'clock in each revolution.

18. The method as set forth in claim 16, further including:
pulsing the x-ray source at a plurality of the selected angular locations in each revolution.
19. The method as set forth in claim 18, wherein the angular locations are fixed every 9 degrees of rotation.
20. The method as set forth in claim 18, further including:
calculating a subject contour.
21. The method as set forth in claim 20, wherein the subject has a non-uniform geometry and further including:
collecting an attenuation data to produce a subject absorption contour; and
determining an optimal radiation dose based on the attenuation data and subject contour to obtain a constant quality image.